4.0 ALTERNATIVES

INTRODUCTION

The purpose of this chapter is to evaluate and compare the expected environmental effects of alternatives to the proposed 2004 RTP. CEQA Guidelines require that an EIR evaluate a "reasonable range" of potentially feasible alternatives that would attain most of the basic objectives of the Plan but would avoid or substantially lessen one or more of the significant environmental effects. In addition, a "No Project" Alternative must be evaluated, and the "Environmentally Superior Alternative" must be identified. The No Project Alternative must discuss what would be expected to occur in the foreseeable future if no plan is approved. The EIR must compare the relative impacts of the alternatives with the goal of fostering informed decision-making and public participation.

In accordance with these guidelines, this PEIR evaluates a range of alternatives in addition to the proposed 2004 RTP, including:

- The No Project Alternative
- The Modified 2001 RTP Alternative
- The PILUT 1 (Infill) Alternative
- The PILUT 2 (Fifth Ring) Alternative

The major characteristics of these alternatives compared to the proposed Plan are provided in Table 4-1. A comparison of the expected environmental effects of each RTP Alternative is summarized in Table ES-1.

Table 4-1: Characteristics of the 2004 RTP Alternatives

	No Project	Plan	2001 Modified	PILUT 1 (Infill)	PILUT 2 (5th Ring)
Total Population in 2030	22,890,000	22,890,000	22,890,000	22,890,000	22,890,000
Total Households in 2030	7,476,000	7,660,000	7,660,000	7,476,000	7,660,000
Total Employment in 2030	10,168,000	10,536,000	10,536,000	10,168,000	10,536,000
Transportation Network	Baseline[1]	Plan	Plan	PILUT 1	PILUT 2
Aviation Scenario	Constrained	Preferred	Preferred	Constrained	Preferred
Land-Use-Transportation Measures	None beyond existing	In-fill and TOD[2] where feasible	None beyond existing	Aggressive infill and TOD in the existing urban centers	Aggressive infill and TOD, focusing on the outlying areas of the region

[1] Baseline refers to all in-place regionally significant projects and on going travel demand programs, in addition to those projects included in the 2002 RTIP with NEPA clearance as of December 2002.

[2] Transit-Oriented Development

Source: SCAG. (2003).

NO PROJECT ALTERNATIVE

The No Project Alternative includes projects and programs that would be reasonably foreseeable, absent adoption of the 2004 RTP. These projects include all in-place regionally significant highway and transit facilities, services and activities; all on-going travel demand management (TDM) or transportation system management (TSM) activities; and completion of all regionally significant projects that are currently under construction or undergoing right-of-way acquisition. These reasonably foreseeable projects are included in the 2002 Regional Transportation Improvement Program (RTIP) and have completed the National Environmental Policy Act (NEPA) process by December 2002.

The 2030 regional total population is expected to be the same for the No Project Alternative and the proposed 2004 Plan. However, the No Project Alternative has 184,000 fewer households and 368,000 fewer jobs, as this alternative does not receive the economic benefits associated with the transportation investments in the Plan. The growth distribution would differ from the expected distribution supported by implementation of the 2004 RTP. The No Project Alternative does not include land-use-transportation measures and includes fewer transportation projects. As a result, the Plan and the No Project Alternative provide differing mobility, and different employment and housing options, resulting in different distributions of growth in 2030.

Land Use

The No Project Alternative includes fewer transportation projects than the 2004 RTP. Thus, the No Project Alternative would be expected to directly consume or disturb fewer acres of agricultural lands and open space than the Plan Alternative. The No Project Alternative potentially would affect 1,300 acres of prime agricultural land and 1,800 acres of grazing land, compared with 6,500 acres of prime agricultural land and 7,700 acres of grazing land under the Plan Alternative. The transportation projects included in the No Project Alternative would be located within 150 feet of 300 acres of designated open space, compared with 1,100 acres of open space in the Plan Alternative. In addition, because the No Project Alternative includes only transportation projects that already have environmental clearance and includes no growth strategies, there would be less potential for conflict with general plans than under the Plan Alternative.

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan Alternative. However, the Plan Alternative includes land use measures that would help reduce the consumption and disturbance of agricultural lands, vacant lands, open space, and recreation lands. These mitigating measures are absent in the No Project Alternative. The proposed Plan Alternative also includes additional transportation improvements that facilitate access to agricultural lands, vacant lands, open space, and recreation lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan Alternative includes additional households and jobs associated with the economic benefits of implementing the Plan Alternative that would consume vacant land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would consume similar acreage of vacant land.

Population, Employment and Housing

The No Project Alternative has fewer households, employment, and transportation projects than the Plan Alternative. It also does not have growth strategies that affect the growth distribution. The impact of induced population growth would be less than under the Plan Alternative. The No Project Alternative contains fewer transportation investments than the Plan Alternative. Subsequently, there are fewer places where businesses and homes would be displaced and fewer places where communities would be disrupted. The GIS analysis of existing land use data show that the freeway, transit, and freight rail projects in the No Project Alternative would occur within 150 feet of 5,300 acres of business land uses (commercial, industrial, and extraction land uses) and 2,800 acres of residential land uses (rural, low, and medium to high density housing land uses). For the Plan Alternative, 18,100 acres of business land uses and 8,100 acres of residential land uses would be affected by transportation projects.

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. However, the Plan includes land use measures that would help reduce the displacement, disruption, or division of existing communities. These mitigating measures are absent in the No Project Alternative. The proposed Plan also includes additional transportation improvements that facilitate access to currently vacant lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan includes additional households and jobs associated with the economic benefits of implementing the Plan that would consume vacant land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would consume similar acreage of currently vacant natural land.

Transportation

The No Project Alternative would result in greater than or equal impacts to transportation resources, compared to the 2004 RTP. The No Project Alternative would generally be expected to result in more miles traveled and more delay. The No Project Alternative would result in 500.3 million daily Vehicle Miles Traveled (VMT), more than the 2004 RTP's 482.3 million daily VMT. Daily hours of delay in the No Project Alternative would be 5.4 million person-hours of delay for all vehicles and 0.240 million vehicle-hours of delay for heavy-duty trucks. Comparatively, the 2004 RTP would result in 3.2 million person-hours of delay for all vehicles and 0.161 million vehicle-hours of delay for heavy-duty trucks. The differences between No Project and 2004 RTP impacts to transportation are detailed in Tables 3.3-11 through 3.3-14.

The No Project Alternative would result in fewer work opportunities within 45 minutes travel time than the Plan. Specifically, 83% of work trips could be made within 45 minutes by auto and 29% by transit with the No Project Alternative, compared with 90% within 45 minutes by auto and 34% by transit with implementation of the 2004 RTP.

The No Project fatality and injury rates would be slightly higher than for the 2004 RTP (0.28 daily fatalities per million persons compared to 0.27 under the Plan and 11.0 daily injuries per million persons compared to 10.6 under the Plan).

The effects of growth and other external factors are included in the Regional Travel Demand Model that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT, and heavy-duty truck VHT data reported for the No Project. The No Project would have greater cumulative adverse transportation impacts than the 2004 RTP.

Air Quality

As indicated in Table 3.4-5 the No Project Alternative would result in greater air quality impacts of criteria pollutants and toxic air contaminants (TACs), (with the exception of NOx) when compared to the 2004 RTP. The No Project Alternative emissions of NOx are less than 2004 RTP emissions.

Tables 4-2 and 4-3 summarize the current and No Project criteria pollutant emissions estimated by nonattainment areas and South Coast Air Basin (SCAB) counties, respectively. When compared to emissions from the current conditions, the No Project Alternative would result in fewer emissions of ROG, NOx, CO and SO_x for all nonattainment areas and SCAB counties. No project emissions of PN10 for all nonattainment areas and SCAB counties would be greater than PM_{10} emissions for current conditions.

ROG emissions are expected to decrease with the No Project Alternative and therefore, the impact of volatile organic toxics will decrease comparatively. Heavy-duty truck PM_{10} exhaust emissions estimated by SCAG's model include most of the diesel-related TAC emissions. The No Project PM_{10} emissions from heavy-duty trucks would be expected to decrease from 2000 levels for each nonattainment area.

Localized impacts were assessed for the operation phase of the No Project alternative. The risks associated with the No Project alternative are slightly greater than those under the Plan and would be significant.

The No Project Alternative will include fewer projects which improve and expand infrastructure than the 2004 RTP. Therefore, construction activity for the No Project alternative would be less than that expected with implementation of the 2004 RTP. However, the No Project Alternative would be expected to generate a substantial amount of construction activity and therefore exceed the significance thresholds established in the CEQA Guidelines. This would create a significant short-term impact. Localized impacts would also be considered significant.

Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. As previously indicated, regional emissions under the No Project Alternative are greater than under the 2004 RTP. The 2004 RTP conforms with the local air quality management plans, and thus cumulative impacts are considered less than significant. The No Project Alternative, however, may not conform to the local air quality management plans and may have a significant cumulative impact.

Table 4-2: Criteria Pollutant Emissions By Nonattainment Area
No Project Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	No Project	75.92	4.36	1.83	3.15	1.83	5.72	92.81
	Difference	-336.69	-16.92	-6.24	-11.22	-5.71	-4.75	-381.53
	% Difference	-82%	-80%	-77%	-78%	-76%	-45%	-80%
NOx	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	No Project	118.99	4.44	2.35	6.88	3.33	7.81	143.8
	Difference	-618.41	-26.2	-10.49	-24.29	-12.39	-5.84	-697.62
	% Difference	-84%	-86%	-82%	-78%	-79%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	No Project	571.32	26.18	16.36	27.33	16.52	42.31	700.02
	Difference	-3651.17	-168.09	-70.38	-142.64	-72.44	-63.55	-4168.27
	% Difference	-86%	-87%	-81%	-84%	-81%	-60%	-86%
PM_{10}	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	No Project	21.11	0.89	0.64	1.04	0.65	0.59	24.92
	Difference	2.03	0.13	0.32	0.35	0.26	0.18	3.27
	% Difference	**11%**	**17%**	**100%**	**51%**	**67%**	**44%**	**15%**
SO_x	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	No Project	2.56	0.11	0.07	0.12	0.08	0.08	3.02
	Difference	-2.35	-0.07	-0.01	-0.07	-0.03	-0.03	-2.56
	% Difference	-48%	-39%	-13%	-37%	-27%	-27%	-46%

Source: SCAG 2003

The No Project aviation emissions were estimated based on the Constrained Aviation Scenario. As indicated in Table 3.4-19, aviation-related emissions under this scenario would be less than under the 2004 RTP. However, emissions under the Constrained Aviation Scenario increase when compared to current conditions (2000). This would be considered a significant impact.

Noise

The No Project Alternative would result in less noise impact than the 2004 RTP. With fewer transportation projects there would be substantially less construction noise, less impact on noise-sensitive land uses and sensitive receptors, and less cumulative impacts.

Construction impacts due to grading, power tools, earth moving, groundborne vibrations, etc. for the No Project would be less than for the 2004 RTP.

Since the No Project Alternative includes fewer transportation system improvements, the impacts of noise related to operations would be less than under the 2004 RTP because of a decrease in speed, and fewer new transit noise sources.

Table 4-3: Criteria Pollutant Emissions By SCAB County (SCAB portion only)
No Project Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		Los Angeles	San Bernardino	Orange	Riverside	Sum
ROG	Current Conditions	257.99	37.94	76.18	40.51	412.62
	No Project	42.52	8.10	14.79	10.51	75.92
	Difference	-215.47	-29.84	-61.39	-30	-336.7
	% Difference	-84%	-79%	-81%	-74%	-82%
NOx	Current Conditions	453.29	78.25	112.28	93.58	737.4
	No Project	69.14	14.13	17.17	18.54	118.98
	Difference	-384.15	-64.12	-95.11	-75.04	-618.42
	% Difference	-85%	-82%	-85%	-80%	-84%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4222.49
	No Project	334.16	54.70	101.75	80.72	571.33
	Difference	-2317.76	-324.03	-649.84	-359.53	-3651.16
	% Difference	-87%	-86%	-86%	-82%	-86%
PM_{10}	Current Conditions	11.79	1.83	3.23	2.23	19.08
	No Project	12.21	2.12	3.61	3.17	21.11
	Difference	0.42	0.29	0.38	0.94	2.03
	% Difference	**4%**	**16%**	**12%**	**42%**	**11%**
SO_x	Current Conditions	2.95	0.53	0.8	0.64	4.92
	No Project	1.44	0.28	0.44	0.40	2.56
	Difference	-1.51	-0.25	-0.36	-0.24	-2.36
	% Difference	-51%	-47%	-45%	-38%	-48%

Source: SCAG 2003

The number of sensitive receptors impacted by the No Project Alternative is substantially less than for the 2004 RTP. Seven sensitive receptors would be impacted by the transportation projects occurring with implementation of the No Project Alternative, compared to twenty-one with implementation of the 2004 RTP. The cumulative impacts of noise in the region would also be significantly less than in the 2004 RTP.

Aesthetics and Views

Since the No Project Alternative includes fewer transportation projects than the 2004 RTP, it would have a lesser impact in terms of obstructing views and scenic resources, creating contrasting land uses and adding visual elements to existing natural, rural, and open space areas. The No Project would not affect any State Scenic Highways or vista points.
The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. However, the Plan includes land use measures that would help reduce the consumption and disturbance of natural lands and reduce impacts to aesthetics and views. These mitigating measures are absent in the No Project Alternative. The proposed Plan also

includes additional transportation improvements that facilitate access to existing natural lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan includes additional households and jobs associated with the economic benefits of implementing the Plan that would consume land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would cumulatively create similar contrasts with the overall visual character of the existing landscape setting.

Biological Resources

With fewer transportation projects than the 2004 RTP, the direct effects of transportation projects in the No Project Alternative would result in less disturbance of biological resources. As the currently programmed projects included in the No Project Alternative (which would occur regardless of adoption of the 2004 RTP) are built, the impacts to natural vegetation, sensitive species and communities, habitat connectivity, near-road human disturbances, disturbances associated with construction generated smoke, light and noise, potential displacement of riparian and wetland areas, and siltation of water bodies would remain significant. However, these impacts would be reduced compared to implementation of the 2004 RTP.

Construction impacts related to trampling of vegetation would be less than significant (with implementation of the mitigation measures described for Impact 3.7-4), and less than under the 2004 RTP. Neither the No Project Alternative nor the 2004 RTP would conflict with provisions of adopted Habitat Conservation Plans or Natural Communities Conservation Plans.

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. The Plan includes land use measures that support centers-based development, re-development and in-fill where feasible. These mitigating measures are absent in the No Project Alternative. Furthermore, the proposed Plan includes additional households and jobs associated with the economic benefits of the Plan that would consume vacant land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would consume similar acreage of vacant land.

The No Project Alternative's cumulative impacts to biological resources due to urban development would be expected to be approximately the same as those of the 2004 RTP. Future urbanization of about the same magnitude as the Plan would be expected to affect natural vegetation, habitat, and other biological resources.

Cultural Resources

With fewer transportation projects than the 2004 RTP, the No Project Alternative would result in fewer potential impacts to cultural and paleontological resources and human remains since fewer areas would be impacted by excavation and construction activities.

The No Project Alternative's cumulative impacts due to urban development patterns would be expected to be approximately the same as those of the 2004 RTP.

Geology, Soils, and Seismicity

The land area, in acres, of the No Project Alternative adversely impacted by geologic and seismic factors is substantially less than for the Proposed Plan, all of the identified direct impacts would be mitigated to less than significant levels, similar to those impacts under the Plan. The cumulative impact, accounting for the risk to cumulative development in the region would remain significant.

With fewer transportation investments than the Plan Alternative, the No Project Alternative has less risk of damage to transportation infrastructure through surface rupture, ground shaking, liquefaction, and landsliding due to seismic events. Roadwork for the transportation projects would have less risk of increasing long-term erosion potential and slope failure. Local geology would have lower risk of potentially significant impacts to property and public safety due to subsidence and the presence of expansive soils. Given the wide-ranging distribution of the numerous potentially hazardous geological and seismic factors in Southern California, the cumulative impacts of the 2004 RTP on geological and seismic factors would be significant.

Hazardous Materials

With fewer transportation projects, most of the potential direct and cumulative impacts of the No Project Alternative with respect to hazardous materials would likely be less than under the Plan Alternative. These impacts include risk related to transport of hazardous materials, the proximity of hazardous materials use and transportation to schools, and the risk of encountering previously contaminated sites during construction. The decreased mobility associated with the No Project Alternative, especially for heavy-duty trucks, would have a greater cumulative impact on the transport of hazardous materials in counties outside of the SCAG region.

Energy

The consumption of transportation energy under the No Project would exceed that for the Plan Alternative due to an increase in VMT and VHT spent in delay. Therefore, the significant impact 3.11-2 identified for the Plan would be even greater for the No Project Alternative. The direct impact 3.11-1, relating to energy use for construction, would likely be less under the No Project Alternative than the Plan Alternative since fewer new projects would be built. The cumulative impact 3.11-3 would likely still be cumulatively considerable and significant under the No Project Alternative. For further comparison of the No Project and Plan Alternatives, refer to Section 3.11, Energy.

Water Resources

With fewer transportation projects than the 2004 RTP, the direct effects of the No Project Alternative on water resources would be less than under the 2004 RTP. However, as the currently planned projects included in the No Project Alternative (which would occur regardless of adoption of the 2004 RTP) are built, the impacts due to increased road runoff and drainage patterns would remain significant.

Transportation projects' impacts to groundwater infiltration due to increased impervious surfaces of roads and due to increased flood hazards would be less than significant (with the mitigation measures described for Impacts 3.12-2 and 3.12-3). These impacts would be less than those caused by implementation of the 2004 RTP.

Cumulatively, both the Plan and the No Project would potentially impact water quality, groundwater recharge, flood hazards, wastewater treatment capacity, and water supply. In the No Project Alternative, new development would occur to accommodate the same increase in population as projected for the proposed Plan. It is expected that the No Project would consume approximately the same acreage of vacant land as the Plan.

Because of the similar degree of urbanization and vacant land consumption, the cumulative impacts associated with urban development to water quality, groundwater recharge, and flood hazards would be similar between the Plan and the No Project Alternative.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would be approximately the same in the No Project Alternative and the Plan. The total population in each county is constant between the No Project Alternative and the Plan, such that Imperial, Los Angeles, Riverside and San Bernardino Counties would be at or above the existing capacity for wastewater treatment. Though it is expected that services would be added as they are needed, for the purpose of determining significance of the impact, the future wastewater flow must be compared to the existing treatment capacity, and the impact of the No Project Alternative is significant and of similar magnitude to the Plan.

The *existing* water supply and infrastructure would not be able to support the population in the No Project Alternative in 2030. The region's water agencies are continually responding to new information on population growth and would likely provide future supply, but the *existing* supply still falls short of future demand. The impact would remain significant and similar in magnitude to the Plan Alternative.

Public Services and Utilities

Under the No Project Alternative, the need for public facilities and solid waste services for transportation projects would be less than under the Plan Alternative because fewer projects would be built. The potential that building the projects would disrupt or sever underground utility lines also would be less in the No Project Alternative than in the Plan Alternative because there are fewer transportation projects.

Cumulatively, the congestion that results because of a lack of additional transportation improvement projects and the population distribution would result in emergency vehicle response times that are worse in the No Project Alternative than under the Plan Alternative.

The No Project Alternative is projected to result in approximately 761,000 households in areas where there is a high, very high, or extreme threat of wild fires, compared to 731,000 households under the Plan Alternative. The No Project Alternative thus would have a greater cumulative effect than the Plan Alternative in inducing growth in areas with high threats of wild fires.

The cumulative need for additional emergency personnel, schools, and solid waste services to accommodate the population would be the same in the No Project Alternative as in the Plan Alternative.

MODIFIED 2001 RTP ALTERNATIVE

The Modified 2001 RTP Alternative is an update of the adopted 2001 RTP, reflecting the most recent growth estimates and transportation planning decisions. The transportation investments for this Alternative are the same as those in the 2004 RTP. The alternative is a modification of the 2001 RTP in that it updates the growth projection, and modifies the transportation investments according to the newest planning decisions made in the region (e.g. the new Orange County Center Line alignment), and it extends the planning horizon from 2025 to 2030. As an Alternative to the 2004 RTP, the Modified 2001 RTP Alternative does not include any of the land use-transportation strategies utilized in the 2004 RTP. The Modified 2001 RTP Alternative includes the same number of people, households, and jobs as the Plan, though these are distributed differently due to the absence of land use-transportation strategies.

Land Use

Since the Modified 2001 RTP Alternative has the same transportation network as the Plan Alternative, its direct impact on agricultural lands and open space would be similar to the Plan Alternative. The Modified 2001 RTP Alternative does not have the same growth strategies to distribute the future population as the Plan Alternative. The Modified 2001 RTP Alternative is less aggressive on distributing future population and has less of an impact on creating inconsistencies with general plans than the Plan Alternative.

Cumulative impacts of new development to accommodate the additional population would be greater in the Modified 2001 RTP Alternative than in the Plan Alternative because the Modified 2001 RTP Alternative does not have the growth strategies that conserve vacant land.

Population, Employment and Housing

The Modified 2001 RTP Alternative has the same population, household, and employment growth to the Plan Alternative. The impact of the induced growth from the Modified 2001 RTP Alternative would be similar to the Plan Alternative. Since the Modified 2001 RTP Alternative contains the same transportation investments as the Plan Alternative, it would have approximately the same impact as the Plan Alternative in terms of displacing businesses and homes and disrupting and dividing communities.

Cumulative impacts of new development to accommodate the additional population would be greater in the Modified 2001 RTP Alternative than in the Plan Alternative because the Modified 2001 RTP Alternative does not have the growth strategies that conserve vacant land.

Transportation

The Modified 2001 RTP Alternative would result in greater impacts to transportation resources, compared to the 2004 RTP.

The Modified 2001 RTP Alternative would result in 489.5 million daily Vehicle Miles Traveled (VMT), greater than the 2004 RTP's 482.3 million daily VMT. Daily hours of delay under the Modified 2001 RTP Alternative would be 3.4 million person-hours for all vehicles and 0.171 million vehicle-hours for heavy-duty trucks. Comparatively, the 2004 RTP would produce 3.2 million person-hours of delay for all vehicles and 0.161 million vehicle-hours of delay for heavy-duty trucks.

The Modified 2001 RTP Alternative would result in approximately the same percentage of work opportunities within 45 minutes travel time as the Plan. Eighty-eight percent of work trips would be made within 45 minutes by auto and 34% by transit with the Modified 2001 RTP Alternative, compared to 90% within 45 minutes by auto and 34% by transit with implementation of the 2004 RTP.

The Modified 2001 RTP Alternative fatality rates would be approximately the same as the 2004 RTP (0.27 daily fatalities per million persons). The Modified 2001 RTP Alternative injury rates would be greater than the 2004 RTP (10.8 daily injuries per million persons compared to 10.6 in the Plan).

The effects of growth and other external factors are included in the Regional Travel Demand Model that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT, and heavy-duty truck VHT data reported for the Modified 2001 RTP Alternative above. The Modified 2001 RTP Alternative would have greater cumulative impacts than the 2004 RTP.

Air Quality

Region-wide criteria pollutant and TAC emissions under the Modified 2001 RTP Alternative are greater than the criteria pollutant and TAC emissions under the 2004 RTP.

Tables 4-4 and 4-5 summarize the current and Modified 2001 RTP Alternative criteria emissions estimated by nonattainment area and SCAB county, respectively. When compared to the current conditions, the Modified 2001 RTP Alternative would result in fewer emissions of ROG, NOx, CO and SO_x for all nonattainment areas and SCAB counties, and fewer emissions of PM_{10} for LA County. As a result of the Modified 2001 RTP Alternative, all nonattainment areas would experience increases in PM_{10} emissions with a combined increase of 10%. This increase in PM_{10} emissions would be considered a significant impact.

ROG emissions are expected to decrease as result of the 2001 RTP Modified Alternative and therefore, the impact of volatile organic toxics will decrease comparatively. As shown in Table 4-6, PM_{10} emissions from heavy-duty trucks would be expected to decrease from 2000 levels for

Table 4-4: Criteria Pollutant Emissions By Nonattainment Area
Modified 2001 RTP Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	2001 RTP Modified	74.14	4.23	1.74	3.18	1.82	5.69	90.8
	Difference	-338.47	-17.05	-6.33	-11.19	-5.72	-4.78	-383.54
	% Difference	-82%	-80%	-78%	-78%	-76%	-46%	-81%
NOx	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	2001 RTP Modified	121.38	4.38	2.35	7.11	3.41	7.79	146.42
	Difference	-616.02	-26.26	-10.49	-24.06	-12.31	-5.86	-695
	% Difference	-84%	-86%	-82%	-77%	-78%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	2001 RTP Modified	547	25.17	15.3	27	16.3	41.91	672.68
	Difference	-3675.49	-169.1	-71.44	-142.97	-72.66	-63.95	-4195.61
	% Difference	-87%	-87%	-82%	-84%	-82%	-60%	-86%
PM_{10}	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	2001 RTP Modified	20.15	0.86	0.59	1.02	0.65	0.59	23.86
	Difference	1.07	0.1	0.27	0.33	0.26	0.18	2.21
	% Difference	**6%**	**13%**	**84%**	**48%**	**67%**	**44%**	**10%**
SO_x	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	2001 RTP Modified	2.48	0.11	0.07	0.12	0.08	0.08	2.94
	Difference	-2.43	-0.07	-0.01	-0.07	-0.03	-0.03	-2.64
	% Difference	-49%	-39%	-13%	-37%	-27%	-27%	-47%

Source: SCAG 2003

each nonattainment area. This comparison gives a good indication of trends in TAC emissions from the transportation network. As a result of the anticipated decline in TAC emissions, the Modified 2001 RTP Alternative would not likely create a significant impact with respect to regional TAC emissions.

Localized impacts were assessed for the operation phase of the Modified 2001 RTP Alternative. The risks associated with the Modified 2001 RTP Alternative are slightly greater than those under the Plan, and would be significant.

The Modified 2001 RTP Alternative includes projects which improve and expand infrastructure that are the same as those in the 2004 RTP. Therefore, construction activity for the 2001 RTP Modified would be similar to that expected with implementation of the 2004 RTP. The Modified 2001 RTP Alternative would be expected to generate a substantial amount of construction activity and therefore exceed the significance thresholds established in the CEQA Guidelines. This would create a significant short-term impact. Localized impacts from construction would also create a significant impact.

Table 4-5: Criteria Emissions By SCAB County (SCAB portion only)
Modified 2001 RTP Emissions in 2030 Compared to Current Conditions
(Emissions in 2000) (in Tons per Day)

		Los Angeles	San Bernardino	Orange	Riverside	Sum
ROG	Current Conditions	257.99	37.94	76.18	40.51	444.37
	2001 RTP Modified	40.94	8.16	14.59	10.45	84.06
	Difference	-217.05	-29.78	-61.59	-30.06	-360.31
	% Difference	-84%	-78%	-81%	-74%	-81%
NOx	Current Conditions	453.29	78.25	112.28	93.58	781.69
	2001 RTP Modified	69.39	15.07	17.52	19.39	133.54
	Difference	-383.9	-63.18	-94.76	-74.19	-648.15
	% Difference	-85%	-81%	-84%	-79%	-83%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4522.62
	2001 RTP Modified	316.51	53.79	98.79	77.91	614.08
	Difference	-2335.41	-324.94	-652.8	-362.34	-3908.54
	% Difference	-88%	-86%	-87%	-82%	-86%
PM_{10}	Current Conditions	11.79	1.83	3.23	2.23	20.25
	2001 RTP Modified	11.48	2.11	3.52	3.04	21.6
	Difference	-0.31	0.28	0.29	0.81	1.35
	% Difference	**-3%**	**15%**	**9%**	**36%**	**7%**
SO_x	Current Conditions	2.95	0.53	0.8	0.64	5.21
	2001 RTP Modified	1.37	0.29	0.43	0.39	2.67
	Difference	-1.58	-0.24	-0.37	-0.25	-2.54
	% Difference	-54%	-45%	-46%	-39%	-49%

Source: SCAG 2003

Table 4-6: 2001 RTP Modified Alternative
PM_{10} Emissions for heavy-duty Trucks per Nonattainment Area
(Tons per Day)

	SCAB	Ventura County	Antelope Valley	Victor Valley	Coachella Valley	Imperial County
2000 Base Year	6.70	0.20	0.08	0.27	0.13	0.22
2001 RTP Modified	3.62	0.10	0.05	0.22	0.10	0.21
PM Exhaust Only						
2000 Base Year	5.88	0.16	0.06	0.23	0.11	0.21
2001 RTP Modified	2.15	0.05	0.03	0.12	0.06	0.15

Source: Southern California Association of Governments

Emissions derived from DTIM 4.02 using EMFAC2002

Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. As previously indicated, regional emissions under the Modified 2001 RTP Alternative are greater than those under the 2004 RTP. The 2004 RTP conforms with the local air quality management Plans and cumulative impacts are less than significant. However, the 2001 RTP Modified emissions may not conform to the local air quality management plans and may have a significant cumulative impact.

2001 RTP Modified aviation emissions would be based on the Preferred Aviation Plan. As indicated in Table 3.4-19 aviation-related emissions under this scenario would be significant.

Noise

The transportation improvements in the Modified 2001 RTP are the same as those in the 2004 RTP. Construction noise related to grading, power tools, earth moving, groundborne vibrations, etc. would, therefore, be the same as for the 2004 RTP.

The impact of noise on areas directly located next to transportation facilities would be similar for the Modified 2001 RTP and the 2004 RTP. The projects included in the alternatives would be the same and the potential noise impact within 150 feet of transportation facilities would also be the same, and the number of existing sensitive receptors that would be impacted by the Modified 2001 RTP would the same as the 2004 RTP.

Cumulative noise impacts for the Modified 2001 RTP would also be similar to those from implementation of the 2004 RTP. Construction, ambient, aviation and port noise would be the same between the two alternatives.

Aesthetics and Views

The direct impacts of the Modified 2001 RTP Alternative on aesthetics and views would be the same as those of the Plan Alternative because the transportation projects included in both Alternatives are the same. The Modified 2001 RTP would have the same impact on obstructing scenic resources, creating contrasting land uses, and adding visual elements to existing natural, rural, and open space areas. The Modified 2001 RTP Alternative would have the same impact on State Scenic Highways and vista points.

New development to accommodate the additional population would be greater cumulatively in the Modified 2001 RTP Alternative than in the Plan Alternative because the Modified 2001 RTP Alternative does not have the growth strategies that conserve vacant land. This development would create greater contrasts with the overall visual character of the existing landscape setting in the Modified 2001 RTP Alternative than in the Plan Alternative.

Biological Resources

The transportation investments for the Modified 2001 RTP Alternative are identical to those in the 2004 RTP. The direct impacts to natural vegetation, sensitive species and communities, habitat

connectivity, near-road human disturbances, disturbances associated with construction-generated smoke, light and noise; potential displacement of riparian and wetland areas, and siltation of water bodies would be significant and the same as the 2004 RTP.

Construction impacts related to trampling of vegetation would be less than significant (with implementation of the mitigation measures described for Impact 3.7-4), and the same as the 2004 RTP. Neither the Modified 2001 RTP Alternative nor the 2004 RTP would conflict with provisions of adopted Habitat Conservation Plans or Natural Communities Conservation Plans.

New development to accommodate the additional population would be greater cumulatively in the Modified 2001 RTP Alternative than in the Plan Alternative because the Modified 2001 RTP Alternative does not have the growth strategies that conserve vacant land. The Modified 2001 RTP Alternative would be expected to consume more land when compared to the 2004 RTP, and therefore would cumulatively affect more biological resources.

Cultural Resources

As mentioned above, the transportation investments for the Modified 2001 RTP Alternative are the same as those in the 2004 RTP. Therefore, the direct impacts to cultural resources would be significant and the same as the 2004 RTP.

The Modified 2001 RTP Alternative's cumulative impacts due to urban development patterns would be expected to be greater than those of the 2004 RTP. The Alternative would accommodate similar population, households, and employment as the 2004 RTP, but without implementation of policies that create a more compact urban form. Thus, the urban development patterns associated with the Modified 2001 RTP Alternative would be expected to cumulatively disturb more previously undisturbed areas when compared to the 2004 RTP.

Geology, Soils, and Seismicity

The impacts for the Modified 2001 RTP Alternative are comparable to the Plan Alternative, in all cases. With the same transportation investments as the Plan Alternative, the Modified 2001 RTP Alternative has the same risk of damage to transportation infrastructure through surface rupture, ground shaking, liquefaction, and landsliding due to seismic events. Roadwork for the transportation projects would have the same risk of increasing long-term erosion potential and slope failure. Local geology would pose the same risk of Potentially significant impacts to property and public safety due to subsidence and the presence of expansive soils. The cumulative impacts of the 2004 RTP on geological and seismic factors will be significant.

Hazardous Materials

In the Modified 2001 RTP Alternative, heavy duty truck VMT would grow slightly more than for the Plan Alternative. This would imply that transportation of hazardous materials would also be slightly greater, with greater risks, than for the Plan Alternative. Thus Impact 3.10-1 would be greater under the Modified 2001 RTP than under the Plan.

Impact 3.10-2, which relates to the use of hazardous materials during construction, would be the same for the Modified 2001 RTP Alternative as for the 2004 RTP, since the transportation system investments in the two Alternatives are the same.

Impact 3.10-3, which relates to the risk of release of hazardous materials within one-quarter mile of a school, would be the same for the Modified 2001 RTP Alternative as for the 2004 RTP, since the transportation system investments in the two Alternatives are the same.

Impact 3.10-4, which relates to the risk of disturbing contaminated sites during construction, would be the same for the Modified 2001 RTP Alternative as for the 2004 RTP, since the transportation system investments in the two Alternatives are the same.

Cumulative Impact 3.10-5, which relates to hazardous materials transportation impacts on neighboring counties, would be greater for the Modified 2001 RTP Alternative than for the 2004 RTP, as mobility would decrease relative to the Plan, leading to greater pressure on the transportation systems of other counties.

Cumulative Impact 3.10-6, which relates to the risk of disturbing contaminated sites during construction related to the region's growth as a whole, would be expected to be reduced under the Modified 2001 RTP Alternative since growth policies would not be included that would emphasize infill and redevelopment versus use of new land.

Energy

Impact 3.11-1, which relates to the use of energy resources in construction and expansion of the regional transportation system, would be the same for the Modified 2001 RTP Alternative as for the 2004 RTP, since the transportation system investments in the two Alternatives are the same.

Impact 3.11-2 relates to the use of energy resources in the operation of the regional transportation system and is significant after mitigation. Transportation energy usage is projected to be slightly higher under the Modified 2001 RTP Alternative compared with the 2004 RTP Alternative.[1] The magnitude of this impact under the Modified 2001 RTP Alternative would still be significant even after mitigation.

Cumulative Impact 3.11-3 is a significant impact relating to the overall growth in the use of energy resources for the SCAG region. As mentioned above, transportation energy consumption under the Modified 2001 RTP Alternative would be slightly higher compared to the Plan Alternative. In addition, the analysis of residential energy consumption indicates that the Modified 2001 RTP Alternative would consume slightly more energy due to a distribution of household types that includes more energy-intensive single-family homes versus the Plan Alternative. Overall, the increase in regional energy consumption under the Modified 2001 RTP Alternative would be cumulatively considerable and therefore significant.

[1] The transportation fuel consumption in Imperial County for the Modified 2001 RTP Alternative was assumed to be the same as for the 2004 RTP.

Water Resources

The transportation investments for the Modified 2001 RTP Alternative are the same as those in the 2004 RTP. The direct impacts due to increased road runoff and drainage patterns would remain significant and the same as the Plan Alternative.

Transportation project impacts due to decreased groundwater infiltration, and increased flooding hazards would be less than significant with implementation of the mitigation measures described for Impacts 3.12-1 through 3.12-3 and the same as the Plan.

The Modified 2001 RTP Alternative's cumulative impacts to water quality, groundwater recharge and flood hazards due to urban development patterns would be expected to be greater than those of the 2004 RTP. The alternative would accommodate similar population, households, and employment to the 2004 RTP, but as noted above, the growth distribution associated with the Modified 2001 RTP Alternative would be expected to consume more land than the Plan.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would be approximately the same in the Modified 2001 RTP Alternative and the Plan. The total population in each county is constant between the Modified 2001 RTP Alternative and the Plan, such that Imperial, Los Angeles, Riverside and San Bernardino counties would be at or above the existing capacity for wastewater treatment. Though it is expected that services would be added as they are needed, for the purpose of determining significance of the impact, the future wastewater flow must be compared to the existing treatment capacity, and the impact of the Modified 2001 RTP Alternative is significant and of similar magnitude to the Plan impacts.

The *existing* water supply and infrastructure would not be able to support the population in the Modified 2001 RTP Alternative in 2030. Implementation of the mitigation measures would provide future supply, but the *existing* supply still falls short of future demand. The impact would remain significant and similar in magnitude to the Plan Alternative.

Public Services and Utilities

Under the Modified 2001 RTP, the need for police, fire, schools, and solid waste services would be the same as the Plan Alternative. The potential to sever underground utility lines would also be the same.

The population distribution of the Modified 2001 RTP Alternative would not be as compact as under the Plan Alternative. The associated traffic congestion would result in emergency vehicle response times that are worse than under the Plan Alternative.

The Modified 2001 RTP Alternative is projected to result in approximately 781,000 households in areas where there is a high, very high, or extreme threat of wild fires, compared with 731,000 households under the Plan Alternative. The Modified 2001 RTP Alternative would have a greater cumulative impact than the Plan Alternative in inducing growth in areas with high threats of wild fires.

The cumulative impact of new development to accommodate the additional population would generate approximately the same need for additional emergency personnel, schools, and solid waste services and would result in approximately the same chance of severing underground utility lines for the Modified 2001 RTP Alternative as for the Plan Alternative.

PILUT 1 (INFILL) ALTERNATIVE

The development of the 2004 RTP proceeded via an integrated process called Planning for Integrated Land Use and Transportation, or PILUT. The regional growth visioning effort known as Southern California Compass was an element of this process and contributed two contrasting alternatives to the 2004 RTP that were analyzed in this EIR, known as PILUT 1 and PILUT 2.

The PILUT 1 (Infill) Alternative includes transportation and urban-form strategies that encourage a substantial portion of future growth to concentrate in existing urban centers through infill and redevelopment. This Alternative was designed by Fregonese Calthorpe Associates, SCAG's consultant on the growth visioning effort, to reduce consumption of open space and habitat compared to the 2004 RTP. The PILUT 1 Alternative analyzed in this PEIR represents one potential vision of what could occur if the investments, urban form strategies, and goals of this Alternative were fully realized.

The PILUT 1 Alternative does not include the privately funded transportation projects: Maglev investments and the freight rail and roadway capacity enhancements. Additionally, this Alternative includes a "constrained" aviation scenario in which the region serves only 141 MAP due to a lesser reliance on airports in the Inland Empire and Northern Los Angeles County compared to the 2004 RTP. The PILUT 1 Alternative does not include the economic benefits of the privately funded elements of the Plan, resulting in 184,000 fewer households and 368,000 jobs relative to the Plan.

Land Use

The PILUT 1 Alternative's transportation network would have a lesser potential effect on prime farmlands and grazing lands because it does not have the Maglev system (as well as fourteen Maglev stations), goods movement capacity enhancements, or freight rail lines. Without these projects, the PILUT 1 Alternative's freeway, transit and rail projects would potentially affect 5,900 acres of prime agricultural land and 5,700 acres of grazing land, compared with 6,500 acres of prime agricultural land and 7,700 acres of grazing land in the Plan Alternative.

The PILUT 1 transportation projects would be so located as to potentially affect 900 acres of designated open space. This is less than the Plan Alternative, which would affect 1,100 acres of open space.

Current land use practices would have to be changed to accommodate the PILUT 1 Alternative because this alternative focuses considerable growth onto the existing urban area. To achieve the densities of the PILUT 1 Alternative, there would be a greater chance of conflicting with general plans in the PILUT 1 Alternative than in the Plan Alternative.

New development to accommodate the additional population would consume fewer acres than in the proposed Plan. The distribution pattern for the PILUT 1 Alternative is the most focused on infill of the different Alternatives. If fully realized as envisioned, the PILUT 1 Alternative would be expected to consume only half as many acres of vacant, natural land as the Plan. Because of this, the population distribution of the PILUT 1 Alternative would have a lesser cumulative effect than the Plan Alternative on agriculture and open space and would cumulatively contribute less to urban development on currently vacant land.

Population, Employment and Housing

The PILUT 1 Alternative would have smaller household and employment growth but the same population growth as the Plan Alternative. The impact of the induced population growth would be less than for the Plan Alternative because the PILUT 1 Alternative has fewer households and jobs and because the PILUT 1 Alternative is the most focused on infill of the different Alternatives.

The GIS analysis of existing land use data shows that the freeway, transit, and freight rail projects in the PILUT 1 Alternative would potentially affect 15,500 acres of business land uses (commercial, industrial, and extraction land uses) and 7,300 acres of residential land uses (rural, low density, and medium to high density land uses). This is less than for the Plan Alternative, with 18,100 acres of business land uses and 8,100 acres of residential land uses potentially affected by transportation projects. The PILUT 1 Alternative would have less effect on displacing businesses and homes than the Plan Alternative because it disrupts fewer businesses and homes.

New development to accommodate the additional population would consume fewer acres than the proposed Plan. The distribution pattern for the PILUT 1 Alternative is the most focused on infill of the different Alternatives. Because of this, the population distribution of the PILUT 1 Alternative would have a lesser cumulative effect than the Plan Alternative on agriculture and open space and would contribute cumulatively less to urban development on currently vacant land.

Transportation

The PILUT 1 Alternative would result in less transportation impacts than the 2004 RTP. The PILUT 1 Alternative would result in 451.6 million daily Vehicle Miles Traveled (VMT), less than the 2004 RTP's 482.3 million daily VMT, and the VMT in the base year, making it a beneficial impact. Daily hours of delay under the PILUT 1 Alternative would be 2.9 million person-hours for all vehicles and 0.160 million vehicle-hours for heavy-duty trucks. Comparatively, the 2004 RTP would produce 3.2 million person-hours of delay for all vehicles and 0.161 million vehicle-hours of delay for heavy-duty trucks.

The PILUT 1 Alternative would result in a greater percentage of work opportunities within 45 minutes travel time than the 2004 RTP. Ninety-two percent of work trips could be made within 45 minutes by auto and 40% by transit with the PILUT 1 Alternative, compared to 90% within 45 minutes by auto and 34% by transit with implementation of the 2004 RTP.

The PILUT 1 Alternative fatality rates would be lower than the 2004 RTP (0.25 daily fatalities per million persons in PILUT 1 compared to 0.27 for the 2004 RTP). The PILUT 1 injury rates would be lower than the 2004 RTP (9.8 daily injuries per million persons compared to 10.6 in the Plan).

The effects of growth and other external factors are included in the Regional Travel Demand Model that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT, and heavy-duty truck VHT data reported for the PILUT 1 Alternative above. The PILUT 1 Alternative would have less cumulative impacts than the 2004 RTP.

Air Quality

Region-wide criteria pollutant emissions under the PILUT 1 Alternative are less than the criteria pollutant emissions under the 2004 RTP.

Tables 4-7 and 4-8 summarize the current and PILUT 1 criteria emissions estimated by nonattainment areas and SCAB counties, respectively. When compared to the current condition emissions, the PILUT I Alternative would result in fewer emissions of ROG, NOx, CO and SO_x for all nonattainment areas and SCAB counties and fewer emissions of PM_{10} for LA County. Emissions of PM_{10} for all nonattainment areas combined would increase by 2% as a result of the PILUT 1 Alternative. This increase in PM_{10} emissions would be considered a significant impact. Antelope Valley, Coachella Valley and Imperial County would experience the greatest increases in PM_{10} emissions.

ROG emissions are expected to decrease as result of the PILUT 1 Alternative and therefore, the impact of volatile organic toxics will decrease comparatively. As shown in Table 4-9, PM_{10} emissions from heavy-duty trucks would be expected to decrease from 2000 levels for each county. This comparison gives a good indication of trends in TAC emissions from the transportation network. As a result of the anticipated decline in TAC emissions, the PILUT 1 Alternative would have a less than significant impact with respect to regional TAC emissions.

Localized impacts were assessed for the operation phase of the PILUT I Alternative. The risks associated with the PILUT I alternative are slightly less than those under the Plan, but would be significant.

PILUT I does not include Maglev investments, freight rail improvements nor the proposed goods movement enhancement projects. Therefore, construction activity for PILUT 1 would be considerably less than that under the 2004 RTP. However PILUT I contains many major construction projects such as new highways projects and arterials. The PILUT 1 Alternative would be expected to generate a significant amount of construction activity and therefore exceed the significance thresholds established in the CEQA Guidelines. This would create a significant short-term impact. Localized impacts from construction would also be considered significant. Other construction impacts include potential construction-related traffic impacts due to congestion from lane closures. These impacts should be addressed at the project level analysis.

Table 4-7: Criteria Pollutant Emissions By Nonattainment Area
PILUT 1 Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	PILUT 1	67.77	4.23	2.28	2.78	2.07	5.69	84.82
	Difference	-344.84	-17.05	-5.79	-11.59	-5.47	-4.78	-389.52
	% Difference	-84%	-80%	-72%	-81%	-73%	-46%	-82%
NOx	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	PILUT 1	114.3	4.46	3.73	5.68	3.72	7.79	139.68
	Difference	-623.1	-26.18	-9.11	-25.49	-12	-5.86	-701.74
	% Difference	-84%	-85%	-71%	-82%	-76%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	PILUT 1	493.62	25.2	18.95	22.66	18.68	41.91	621.02
	Difference	-3728.87	-169.07	-67.79	-147.31	-70.28	-63.95	-4247.27
	% Difference	-88%	-87%	-78%	-87%	-79%	-60%	-87%
PM_{10}	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	PILUT 1	18.28	0.86	0.76	0.88	0.75	0.59	22.12
	Difference	-0.8	0.1	0.44	0.19	0.36	0.18	0.47
	% Difference	-4%	**13%**	**138%**	**28%**	**92%**	**44%**	**2%**
SO_x	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	PILUT 1	2.26	0.11	0.09	0.1	0.09	0.08	2.73
	Difference	-2.65	-0.07	0.01	-0.09	-0.02	-0.03	-2.85
	% Difference	-54%	-39%	13%	-47%	-18%	-27%	-51%

Source: SCAG 2003

Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. As previously indicated, regional emissions under PILUT 1 are less than the 2004 RTP. The 2004 RTP conforms with the local air quality management Plans and cumulative impacts are less than significant. Therefore, PILUT 1 emissions would also conform to the local air quality management plans and have a less than significant cumulative impact.

PILUT 1 aviation emissions would be based on the Constrained Aviation Scenario. As indicated in Table 3.4-19 aviation-related emissions under this scenario would be less than the 2004 RTP Preferred Plan. However, emissions under the Constrained Aviation Plan increase when compared to current conditions and would be considered a significant impact.

Noise

Without Maglev, and freight rail projects and other goods movement enhancement projects, the PILUT 1 Alternative would have less of a noise impact than the 2004 RTP.

**Table 4-8: Criteria Pollutant Emissions By SCAB County (SCAB portion only)
Pilut 1 in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)**

		Los Angeles	San Bernardino	Orange	Riverside	Sum
ROG	Current Conditions	257.99	37.94	76.18	40.51	412.62
	PILUT 1	36.58	8.2	13.55	9.44	67.77
	Difference	-221.41	-29.74	-62.63	-31.07	-344.85
	% Difference	-86%	-78%	-82%	-77%	-84%
NOx	Current Conditions	453.29	78.25	112.28	93.58	737.4
	PILUT 1	66.05	14.08	16.64	17.53	114.3
	Difference	-387.24	-64.17	-95.64	-76.05	-623.1
	% Difference	-85%	-82%	-85%	-81%	-84%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4222.49
	PILUT 1	277.78	54.47	91.14	70.23	493.62
	Difference	-2374.14	-324.26	-660.45	-370.02	-3728.87
	% Difference	-90%	-86%	-88%	-84%	-88%
PM_{10}	Current Conditions	11.79	1.83	3.23	2.23	19.08
	PILUT 1	10.15	2.14	3.25	2.74	18.28
	Difference	-1.64	0.31	0.02	0.51	-0.80
	% Difference	-14%	**17%**	**1%**	**23%**	-4%
SO_x	Current Conditions	2.95	0.53	0.8	0.64	4.92
	PILUT 1	1.23	0.29	0.40	0.35	2.27
	Difference	-1.72	-0.24	-0.4	-0.29	-2.65
	% Difference	-58%	-45%	-50%	-45%	-54%

Source: SCAG 2003

Table 4-9: PILUT 1 Alternative PM_{10} Emissions for heavy-duty Trucks per Nonattainment Area (Tons per Day)

	SCAB	Ventura County	Antelope Valley	Victor Valley	Coachella Valley	Imperial County
2000 Base Year	6.70	0.20	0.08	0.27	0.13	0.22
PILUT 1	3.48	0.10	0.14	0.23	0.11	0.21
PM Exhaust Only						
2000 Base Year	5.88	0.16	0.06	0.23	0.11	0.21
PILUT 1	2.04	0.06	0.06	0.14	0.06	0.15

Source: Southern California Association of Governments

Emissions derived from DTIM 4.02 using EMFAC2002

Construction noise related to grading, power tools, earth moving, groundborne vibrations, etc. would be less under the 2004 RTP since several major projects would not be built.

For the same reason, the impact of noise on areas directly adjacent to transportation facilities would be less with the PILUT 1 Alternative than the 2004 RTP.

Even though there are differences in the transportation projects, the number of sensitive receptors that would be impacted by noise under the PILUT 1 Alternative is the same as the 2004 RTP.

Cumulative and ambient noise would be significant, but less compared to the 2004 RTP. Less overall construction noise, a more constrained aviation system and fewer transit operations would not generate as much ambient and cumulative noise as the 2004 RTP.

Aesthetics and Views

The PILUT 1 Alternative would have less effect on aesthetics and views than the Plan Alternative. The PILUT 1 Alternative does not include Maglev, goods movement capacity enhancements, or freight rail improvements, which might be elevated and may obstruct views. Without these projects, PILUT 1 would have less effect on obstructing scenic resources, creating contrasting land uses and adding visual elements to existing natural, rural, and open space areas. PILUT 1 would have the same impact as the Plan Alternative on State Scenic Highways and vista points.

Since the PILUT 1 Alternative would have more emphasis on infill development than the Plan Alternative, it would create fewer contrasts with the overall visual character of the existing landscape setting and thus have fewer cumulative impacts.

Biological Resources

Without Maglev, freight rail projects and other goods movement capacity enhancement projects (but otherwise the same the same transportation projects as the 2004 RTP), the PILUT 1 Alternative would disturb fewer biological resources. The impacts to natural vegetation, sensitive species and communities, habitat connectivity, near-road human disturbances, disturbances associated with construction generated smoke, light and noise; potential displacement of riparian and wetland areas, and siltation of water bodies would remain significant. However, these impacts would be reduced compared to implementation of the 2004 RTP.

With fewer major projects built in this alternative, construction impacts related to trampling of vegetation would be less than significant and less than for the 2004 RTP (with implementation of the mitigation measures described for Impact 3.7-4). Neither the PILUT 1 Alternative nor the 2004 RTP would conflict with provisions of adopted Habitat Conservation Plans or Natural Communities Conservation Plans.

The PILUT 1 Alternative's cumulative impacts to biological resources due to urban development patterns would be expected to be less than those of the 2004 RTP. The PILUT 1 Alternative would accommodate similar growth in population, but this alternative includes transportation and

land use strategies that encourage a substantial portion of future growth to concentrate in existing urban centers through infill and redevelopment, more so than the 2004 RTP. The PILUT 1 Alternative would include fewer jobs and households relative to the Plan. These measures would discourage population and employment centers from growing in the outlying areas of the region where consumption of open land (and potentially biological resources) would occur. The PILUT 1 Alternative would consume less land than the 2004 RTP and have less cumulative impact on biological resources than the Plan.

Cultural Resources

Without Maglev, freight rail projects and other goods movement capacity enhancement projects that are included in the 2004 RTP, the PILUT 1 Alternative's direct impacts to cultural resources would be less than those of the 2004 RTP due to the disturbance of fewer previously undisturbed areas.

The PILUT 1 Alternative's cumulative impacts due to urban development patterns would be expected to be less than those of the 2004 RTP. This alternative would accommodate similar population, households, and employment to the 2004 RTP, but this alternative includes transportation and land use strategies that encourage a substantial portion of future growth to concentrate in existing urban centers through infill and redevelopment, more so than the 2004 RTP. These measures would discourage population and employment centers from growing in the outlying areas of the region where consumption of open land would occur. The PILUT 1 Alternative would be expected to consume less land and have a lower potential for disturbing previously undiscovered cultural resources than the 2004 RTP and thus have less cumulative impact on cultural resources.

Geology, Soils, and Seismicity

The PILUT 1 Alternative was designed to reduce consumption of open space and habitat. As a consequence of these "smart growth" measures, and because the Alternative concentrates development in areas of existing development, which generally avoid the various geologic and seismic impacts, this Alternative has a considerably lower acreage of impacted land. All pre-mitigation impacts, while significant, are less so than the Plan Alternative. All post-mitigation impacts, other than the cumulative impact, become less than significant in this case as well.

Hazardous Materials

In the PILUT 1 Alternative, heavy duty truck VMT are projected to grow slightly less than for the Plan Alternative. Transportation of hazardous materials would also be slightly less, with fewer risks, than for the Plan Alternative. Thus Impact 3.10-1, which is significant, would likely be slightly less under PILUT 1 than under the Plan, though it would still be significant.

Impact 3.10-2, which relates to the use of hazardous materials during construction, would probably be less for the PILUT 1 Alternative than for the 2004 RTP, since fewer transportation system investments would be made under the PILUT 1 Alternative and therefore less system construction and expansion would proceed.

Impact 3.10-3 relates to the risk of release of hazardous materials within one-quarter mile of a school. As a result of differences in the transportation system investments, new transportation projects in the PILUT 1 Alternative would be within a quarter-mile radius of 696 schools, which is fifty fewer than the Plan Alternative. This impact would thus be smaller, but still would be significant even with mitigation.

Impact 3.10-4, which relates to the risk of disturbing contaminated sites during construction, would be less for the PILUT 1 Alternative than for the 2004 RTP, since fewer transportation system investments would be made under the PILUT 1 Alternative. This impact would still be less-than-significant with mitigation.

Cumulative Impact 3.10-5, which relates to hazardous materials transportation impacts on neighboring counties, would be less for the PILUT 1 Alternative than for the 2004 RTP, since mobility improves under the PILUT 1 Alternative, including that of heavy-duty trucks, putting less traffic pressure on neighboring counties. This impact would still be significant.

Cumulative Impact 3.10-6, which relates to the risk of disturbing contaminated sites during construction related to the region's growth as a whole, would be expected to be increased under the PILUT 1 Alternative since the Alternative would encourage even more infill and redevelopment than the 2004 RTP Alternative. However, this impact would still be less than significant with mitigation.

Energy

Impact 3.11-1, which relates to the use of energy resources in construction and expansion of the regional transportation system, would be less under the PILUT 1 Alternative than for the 2004 RTP, since fewer transportation system investments would be made and therefore less construction will proceed.

Impact 3.11-2 relates to the use of energy resources in the operation of the regional transportation system. Transportation energy usage would be substantially lower under the PILUT 1 Alternative compared with the 2004 RTP Alternative. However, the magnitude of this impact under the PILUT 1 Alternative would still be significant even after mitigation.

Cumulative Impact 3.11-3 is a significant impact relating to the overall growth in the use of energy resources for the SCAG region. As mentioned above, transportation energy consumption under the PILUT 1 Alternative would be lower compared to the Plan Alternative.[2] Further, the analysis of residential energy consumption indicates that the PILUT 1 Alternative would consume slightly less energy due to a distribution that includes more coastal and less inland development and slightly more reliance on energy-efficient multi-family dwellings in inland areas versus the Plan Alternative. Overall, the magnitude of this impact under the PILUT 1 Alternative would be less

[2] The transportation fuel consumption in Imperial County for the PILUT 1 Alternative was assumed to be the same as for the 2004 RTP.

than for the 2004 RTP Alternative, but it would still be cumulatively considerable and therefore significant.

Water Resources

Without Maglev, the freight rail projects or other goods movement capacity enhancement projects, the PILUT 1 Alternative would have fewer direct impacts to water resources. The direct impacts due to increased road runoff and drainage patterns would be significant but less than for the Plan. Direct impacts to groundwater infiltration due to increased impervious surfaces of roads, and due to increased flooding hazards would be less than significant with implementation of the mitigation measures described for Impacts 3.12-1 through 3.12-3.

The PILUT 1 Alternative's cumulative water quality, groundwater recharge, and flood hazard impacts due to urban development patterns would be expected to be less than those of the 2004 RTP. The PILUT 1 Alternative would accommodate similar growth in population, but this Alternative includes transportation and land use strategies that encourage a substantial portion of future growth to concentrate in existing urban centers through infill and redevelopment, more so than the 2004 RTP. The PILUT 1 Alternative also includes fewer jobs and households relative to the Plan, and consumes less land than the 2004 RTP.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would regionally be approximately the same in the PILUT 1 Alternative and the Plan. The total population in each county differs between the PILUT 1 Alternative and the Plan. Four counties are at or above their treatment capacity in the PILUT 1 Alternative, as for the Plan, but the impacts are distributed to different counties. In the PILUT 1 Alternative, Los Angeles County's wastewater treatment capacity would not be exceeded (as it is under the Plan scenario), and the impacts to Riverside and San Bernardino counties would be greater than under the Plan. Ventura would exceed its wastewater treatment capacity in the PILUT 1 scenario (though not in the Plan), and Imperial County would exceed its capacity as it would in the Plan. Though it is expected that services would be added as they are needed, for the purpose of determining significance of the impact, the future wastewater flow must be compared to the existing treatment capacity, and the impact of the PILUT 1 Alternative is significant and of similar regional magnitude as the Plan, though the impacts are distributed differently.

The PILUT 1 Alternative would distribute less growth within the MWD service area, and more to other water supply agencies than the Plan (see Table 3.12-5). These water agencies are smaller, and most occur in drier inland climates. Relative to the Plan Alternative, these factors would provide additional challenges in supplying municipal water to meet the demand associated with the PILUT 1 Alternative. The *existing* water supply and infrastructure would not be able to support the population in the PILUT 1 Alternative in 2030. Implementation of the mitigation measures would provide future supply, but the *existing* supply still falls short of future demand. The impact would remain significant and greater in magnitude than for the Plan Alternative.

Public Services and Utilities

Under the PILUT 1 Alternative, the need for police and fire/emergency services and solid waste services would be less than for the Plan Alternative because the PILUT 1 Alternative has fewer projects than the Plan Alternative. The potential to sever underground utility lines also would be less than the Plan Alternative.

The cumulative impact of new development to accommodate the additional population would generate approximately the same need for additional emergency personnel, schools, and solid waste services and would result in a similar chance of severing underground utility lines for the PILUT 1 Alternative as for the Plan Alternative. In addition, the emergency vehicle response times that result from the growth distribution of the PILUT 1 Alternative would be similar to those for the Plan Alternative.

The PILUT 1 Alternative is projected to result in approximately 683,000 households in areas where there is a high, very high, or extreme threat of wild fires compared to 731,000 households for the Plan Alternative. The PILUT 1 Alternative would have a lesser cumulative effect than the Plan Alternative because it would facilitate less growth in areas with high threats of wild fires.

PILUT 2 (FIFTH RING) ALTERNATIVE

As mentioned earlier, PILUT 2 (Fifth Ring) is the second of two contrasting alternatives developed through SCAG's growth visioning process by Fregonese Calthorpe Associates. The PILUT 2 Alternative includes transportation and urban-form strategies that encourage a more decentralized urban form, with many compact, infill-intense urban centers throughout the region, resulting in an improvement in the jobs/housing balance in the outlying areas. The PILUT 2 Alternative analyzed in this EIR represents a compact, centers-based vision of what could occur if the investments, urban form strategies, and goals of this Alternative were fully realized.

Specifically, PILUT 2 focuses on improving and expanding infrastructure to utilize undeveloped land on the outer edges of the urbanized area. Transportation investments include additional capacity on State Route 14, along Interstate 5 in Northern Los Angeles County, a "5th ring" expressway connecting Victorville to the Palm Springs area, and expressway improvements on US-395 from State Route 18 to the Kern County Line. Additional arterials in these areas would support these highway improvements. As stated above, this EIR evaluates a relatively compact, centers-based urban form based on full implementation of the vision for PILUT 2. However, expansion of these transportation facilities, without full implementation of the goals and strategies intended to support compact centers, could result in a decentralized regional urban form that facilitates more consumption of vacant land and open space than the proposed 2004 RTP.

Land Use

The PILUT 2 Alternative would directly affect more prime farmland and grazing land than the Plan Alternative. The GIS analysis of the major freeway, transit, and freight rail projects in the PILUT 2 Alternative indicates that 6,500 acres of prime agricultural land and 9,200 acres of grazing land

would be affected by PILUT 2 Alternative transportation projects, compared to 6,500 acres and 7,700 acres, respectively, for the Plan.

The freeway, transit and freight rail projects included in the PILUT 2 Alternative would have the potential to affect 1,100 acres of designated open space. This impact would be the same as the Plan Alternative, which also potentially would affect 1,100 acres of open space.

Current land use practices would have to be changed to accommodate the PILUT 2 Alternative because this alternative focuses a great deal of growth onto the existing urban area in the desert portions of the region. To achieve the densities of the PILUT 2 Alternative, there would be a greater chance of conflicting with general plans in the PILUT 2 Alternative than in the Plan Alternative.

If fully realized as envisioned, the urban footprint of PILUT 2 would be denser than that of the Plan Alternative. The PILUT 2 Alternative would disperse the growth into the outlying desert portions of the region, but would focus the growth in existing urban boundaries of the desert cities. This growth pattern would intensify existing land uses and limit vacant land development. The PILUT 2 Alternative would cumulatively have less of an impact on land use than the Plan Alternative.

Population, Employment and Housing

The population growth in the PILUT 2 Alternative would be the same as for the Plan Alternative, but the greater density of urban development in PILUT 2 would result in less impact of induced growth on currently vacant land.

The GIS analysis of existing land use data show that the freeway, transit, and freight rail projects in the PILUT 2 Alternative would have the potential to affect 18,100 acres of business land uses and 8,200 acres of residential land uses. These data indicate slightly more impacts on displacing, disrupting, or dividing communities than the Plan Alternative, which would have the potential of affecting 18,100 acres of business land uses and 8,100 acres of residential land uses.

If fully realized as envisioned, the urban footprint of PILUT 2 would be denser than that of the Plan Alternative. The PILUT 2 Alternative would disperse the growth into the outlying desert portions of the region, but would focus the growth in existing urban boundaries of the desert cities. This growth pattern would intensify existing land uses and limit vacant land development. The PILUT 2 Alternative would cumulatively have less of an impact on land use than the Plan Alternative.

Transportation

The PILUT 2 Alternative would result in 468.2 million daily Vehicle Miles Traveled (VMT), less than the 2004 RTP's 482.3 million daily VMT. Daily hours of delay under the PILUT 2 Alternative would be 3.7 million person-hours for all vehicles and 0.147 million vehicle-hours for heavy-duty trucks. Comparatively, the 2004 RTP would produce 3.2 million person-hours of delay for all vehicles and 0.161 million vehicle-hours of delay for heavy-duty trucks.

The PILUT 2 Alternative would result in 88% of work trips within 45 minutes by auto and 37% by transit with the PILUT 2 Alternative, compared to 90% within 45 minutes by auto and 34% by transit with implementation of the 2004 RTP.

The PILUT 2 Alternative fatality rates would be less than for the 2004 RTP (0.26 daily fatalities per million persons in PILUT 2 compared to 0.27 for the 2004 RTP). The PILUT 2 Alternative injury rates would be less than for the 2004 RTP (10.3 daily injuries per million persons compared to 10.6 in the Plan).

The effects of growth and other external factors are included in the Regional Travel Demand Model that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT, and heavy-duty truck VHT data reported for PILUT 2above. The PILUT 2 Alternative would have greater cumulative impacts than the 2004 RTP as the new growth in the inland areas would impact the transportation systems of other counties more than the Plan.

Air Quality

Region-wide criteria pollutant emissions under the PILUT 2 Alternative are less than the criteria pollutant emissions under the 2004 RTP.

Tables 4-10 and 4-11 summarize the current and PILUT 2 criteria emissions estimated by nonattainment areas and SCAB counties, respectively. When compared to the current condition emissions, the PILUT 2 Alternative would result in fewer emissions of ROG, NOx, CO and SO_x for all nonattainment areas and SCAB counties and fewer emissions of PM_{10} for LA County and the SCAB as a whole. Emissions of PM_{10} for all counties combined would increase by 6% as a result of the PILUT 2 Alternative. This increase in PM_{10} emissions would be considered a significant impact. Antelope Valley, Coachella Valley and Victor Valley would experience the greatest increases in PM_{10} emissions. ROG emissions are expected to decrease as result of the PILUT 2 Alternative and therefore, the impact of volatile organic toxics will decrease comparatively. As shown in Table 4-12, PM_{10} emissions from heavy-duty trucks would be expected to decrease from 2000 levels for each county. This comparison gives a good indication of trends in TAC emissions from the transportation network. As a result of the anticipated decline in TAC emissions, the PILUT 2 Alternative would have a beneficial impact with respect to regional TAC emissions.

Localized impacts were assessed for the operation phase of the PILUT 2 Alternative. The risks associated with the PILUT 2 alternative are slightly less than those under the Plan, but would be significant.

Since PILUT 2 includes projects which improve and expand transportation infrastructure in the outlying areas, construction activity for PILUT 2 would be greater than that under the 2004 RTP. The PILUT 2 Alternative would be expected to generate a significant amount of construction activity and therefore exceed the significance thresholds established in the CEQA Guidelines. This would create a significant short-term impact. Localized impacts would also be considered

Table 4-10: Criteria Pollutant Emissions By Nonattainment Area
PILUT 2 Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	PILUT 2	67.1	4.07	3.85	3.88	2.19	5.69	86.78
	Difference	-345.51	-17.21	-4.22	-10.49	-5.35	-4.78	-387.56
	% Difference	-84%	-81%	-52%	-73%	-71%	-46%	-82%
NOx	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	PILUT 2	116.2	4.29	4.8	7.85	3.82	7.79	144.75
	Difference	-621.2	-26.35	-8.04	-23.32	-11.9	-5.86	-696.67
	% Difference	-84%	-86%	-63%	-75%	-76%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	PILUT 2	486.36	24.17	34.69	34.12	19.94	41.91	641.19
	Difference	-3736.13	-170.1	-52.05	-135.85	-69.02	-63.95	-4227.1
	% Difference	-88%	-88%	-60%	-80%	-78%	-60%	-87%
PM_{10}	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	PILUT 2	18.00	0.82	1.47	1.3	0.8	0.59	22.98
	Difference	-1.08	0.06	1.15	0.61	0.41	0.18	1.33
	% Difference	-6%	**8%**	**359%**	**88%**	**105%**	**44%**	**6%**
SO_x	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	PILUT 2	2.24	0.10	0.17	0.15	0.10	0.08	2.84
	Difference	-2.67	-0.08	0.09	-0.04	-0.01	-0.03	-2.74
	% Difference	-54%	-44%	113%	-21%	-9%	-27%	-49%

Source: SCAG 2003

significant. Other construction impacts include potential construction-related traffic impacts due to congestion from lane closures. These impacts should be addressed in the project level analysis.

Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. As previously indicated, regional emissions under PILUT 2 are less than the 2004 RTP. The 2004 RTP conforms with the local air quality management Plans and cumulative impacts are less than significant. Therefore, PILUT 2 emissions would also conform to the local air quality management plans and therefore have a less than significant cumulative impact.

PILUT 2 utilizes the Preferred Aviation Plan in the 2004 RTP. Emissions under the Preferred Plan increase when compared to current conditions and would be considered a significant impact.

**Table 4-11: Criteria Pollutant Emissions By SCAB County (SCAB portion only)
Pilut 2 in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)**

		Los Angeles	San Bernardino	Orange	Riverside	Sum
ROG	Current Conditions	257.99	37.94	76.18	40.51	412.62
	PILUT	36.44	7.86	13.4	9.39	67.09
	Difference	-221.55	-30.08	-62.78	-31.12	-345.53
	% Difference	-86%	-79%	-82%	-77%	-84%
NOx	Current Conditions	453.29	78.25	112.28	93.58	737.4
	PILUT 2	67.57	15.09	16.42	17.13	116.21
	Difference	-385.72	-63.16	-95.86	-76.45	-621.19
	% Difference	-85%	-81%	-85%	-82%	-84%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4222.49
	PILUT 2	274.83	51.1	90.15	70.28	486.36
	Difference	-2377.09	-327.63	-661.44	-369.97	-3736.13
	% Difference	-90%	-87%	-88%	-84%	-88%
PM_{10}	Current Conditions	11.79	1.83	3.23	2.23	19.08
	PILUT 2	10.04	2.02	3.21	2.73	18
	Difference	-1.75	0.19	-0.02	0.5	-1.08
	% Difference	-15%	**10%**	-1%	**22%**	-6%
SO_x	Current Conditions	2.95	0.53	0.8	0.64	4.92
	PILUT 2	1.22	0.28	0.39	0.35	2.24
	Difference	-1.73	-0.25	-0.41	-0.29	-2.68
	% Difference	-59%	-47%	-51%	-45%	-54%

Source: SCAG 2003

Table 4-12: PILUT 2 Alternative PM_{10} Emissions for Heavy-Duty Trucks per Nonattainment Area (Tons per Day)

	SCAB	Ventura County	Antelope Valley	Victor Valley	Coachella Valley	Imperial County
2000 Base Year	6.70	0.20	0.08	0.27	0.13	0.22
PILUT 2	3.46	0.10	0.14	0.24	0.11	0.21
PM Exhaust Only						
2000 Base Year	5.88	0.16	0.06	0.23	0.11	0.21
PILUT 2	2.01	0.05	0.07	0.14	0.06	0.15

Source: Southern California Association of Governments

Emissions derived from DTIM 4.02 using EMFAC2002

Noise

With additional transportation improvements compared to the 2004 RTP the PILUT 2 Alternative would have more significant impact with regard to noise than the 2004 RTP.

Additional construction of transportation facilities would create more short-term noise impact than the 2004 RTP. This additional noise would be caused by more grading, use of power tools, and groundborne vibrations.

The impact of noise on sensitive land uses adjacent to transportation projects would be more significant with the PILUT 2 Alternative. Additional freeway and arterial construction would create more noise than the 2004 RTP.

The number of sensitive receptors impacted by the PILUT 2 Alternative is significant, but less than would be impacted by the 2004 RTP.

Cumulative and ambient noise would be greater in the PILUT 2 Alternative than in the 2004 RTP. With additional miles of transportation projects there would be greater noise generated, as well as more construction noise.

Aesthetics and Views

The PILUT 2 Alternative transportation projects would have greater direct impacts to aesthetics and views than the Plan Alternative. The PILUT 2 Alternative would have a greater impact on obstruction of scenic resources, creating contrasting land uses and adding visual elements to existing natural, rural, and open space areas because it contains projects in outlying parts of the region that would bring urban elements to rural areas. It also would include Maglev projects, goods movement capacity enhancements, and freight rail improvements that would obstruct views with elevated structures. The PILUT 2 Alternative would have an approximately equal impact on State Scenic Highways and vista points.

The growth distribution for the PILUT 2 Alternative would be more compact than for the Plan Alternative. The PILUT 2 Alternative would disperse growth into the outlying area. However, the PILUT 2 Alternative would intensify land uses and limit vacant land development, reducing cumulative impacts on views compared to the Plan Alternative.

Biological Resources

With a greater number of highway and arterial lane miles compared to the 2004 RTP, the PILUT 2 Alternative would disturb more biological resources. The impacts to natural vegetation, sensitive species and communities, habitat connectivity, near-road human disturbances, disturbances associated with construction generated smoke, light and noise; potential displacement of riparian and wetland areas, and siltation of water bodies would remain significant and would be increased compared to the 2004 RTP. The PILUT 2 Alternative would include projects that occur within 150

feet of more than 21,000 acres of natural vegetation (and potential sensitive species habitat) compared to the 15,000 acres near the Plan's transportation projects.[3]

Construction impacts related to trampling of vegetation would be less than significant (after application of mitigation measures listed for Impact 3.7-4); however the degree of these impacts would be greater than under the 2004 RTP. Neither the PILUT 2 Alternative nor the 2004 RTP would conflict with provisions of adopted Habitat Conservation Plans or Natural Communities Conservation Plans.

The PILUT 2 Alternative's cumulative biological impacts due to urban development patterns would be expected to be less severe than those of the 2004 RTP. The PILUT 2 Alternative would accommodate similar population, households and employment to the 2004 RTP, but the PILUT 2 Alternative would assume that infill, redevelopment, and centers-based development would be prevalent. If fully realized as envisioned, the PILUT 2 Alternative would be expected to consume less habitat than the Plan by 2030.

Cultural Resources

When compared to the 2004 RTP, the PILUT 2 Alternative would involve an increased number of highway and arterial lane miles. The impacts to cultural resources would remain significant and would be increased compared to the 2004 RTP.

The PILUT 2 Alternative's cumulative impacts due to urban development patterns would be expected to be less than those of the 2004 RTP. The PILUT 2 Alternative would accommodate similar population, households and employment to the 2004 RTP, but the infill pattern in existing inland communities would result in a population distribution that would be expected to consume less vacant land and thereby result in the disturbance of fewer previously undisturbed and potentially culturally significant areas by focusing growth to the outlying areas of the region. This strategy would cumulatively impact fewer cultural resources.

Geology, Soils, and Seismicity

Because the transportation projects in this alternative reach extensively into as-yet undeveloped parts of the region, a considerably greater acreage is impacted under each category of geologic and seismic factors, as compared to the Plan Alternative.

Hazardous Materials

In the PILUT 2 Alternative, heavy duty truck VMT would grow slightly more than for the Plan Alternative. Transportation of hazardous materials would also be slightly more, with greater risks, than for the Plan Alternative. Thus Impact 3.10-1 would be slightly greater under the PILUT 2 Alternative than under the Plan Alternative.

[3] SCAG. (2003). GIS Analysis of the PILUT 2 Alternative and National Wetlands Inventory (Figure 3.3-2- U.S. Fish and Wildlife Service.)

Impact 3.10-2 relates to the use of hazardous materials during construction. Under the PILUT 2 Alternative, some additional transportation system investments would be made to support the decentralized development pattern. Thus, slightly more use of hazardous materials would occur during construction than for the 2004 RTP Alternative. This impact is still expected to be less than significant given the regulation of hazardous material usage.

Impact 3.10-3 relates to the risk of release of hazardous materials within one-quarter mile of a school. As a result of differences in the transportation system investments, new transportation projects in the PILUT 2 Alternative would be within a quarter-mile radius of 738 schools, which is nearly the same as the Plan Alternative (748). This impact would thus be about the same as for the Plan, and would still be significant even with mitigation.

Impact 3.10-4 relates to the risk of disturbing contaminated sites during construction. Since the PILUT 2 Alternative includes additional transportation system investments in outlying areas, it is unforeseeable whether this construction would be more or less likely to encounter contaminated sites. With the recommended mitigation measures, this impact would still be less-than-significant.

Cumulative Impact 3.10-5, which relates to hazardous materials transportation impacts on neighboring counties, would be greater for the PILUT 2 Alternative than for the 2004 RTP. This is because additional transportation system investments would be made in outlying areas that are closer to surrounding counties, and because heavy-duty truck VMT are projected to be slightly higher for this Alternative. This impact would still be significant.

Cumulative Impact 3.10-6 relates to the risk of disturbing contaminated sites during construction related to the region's growth as a whole. Since the PILUT 2 Alternative encourages both decentralized and infill development patterns, it is impossible to speculate whether it would disturb more or fewer contaminated sites than the 2004 RTP Alternative. However, this impact would still be less than significant with mitigation.

Energy

Impact 3.11-1 relates to the use of energy resources in construction and expansion of the regional transportation system. This impact would be slightly greater under the PILUT 2 Alternative than for the 2004 RTP due to the additional elements of transportation infrastructure in outlying areas. This impact would still be expected to be less-than significant.

Impact 3.11-2 relates to the use of energy resources in the operation of the regional transportation system. Transportation energy usage would be somewhat lower under the PILUT 2 Alternative compared with the 2004 RTP Alternative. However, the magnitude of this impact under the PILUT 2 Alternative would still be significant even after mitigation.

Cumulative Impact 3.11-3 is a significant impact relating to the overall growth in the use of energy resources for the SCAG region. As mentioned above, transportation energy consumption under

the PILUT 2 Alternative would be lower compared to the Plan Alternative.[4] The analysis of residential energy consumption indicates that the PILUT 2 Alternative would consume about the same amount of energy. This Alternative would involve more energy-intensive Central Valley and inland development, but would balance it with more reliance on multi-family dwellings in inland areas compared to the Plan Alternative. Overall, the magnitude of this impact under the PILUT 2 Alternative would be less than for the 2004 RTP Alternative, but it would still be cumulatively considerable and therefore significant.

Water Resources

With a greater number of highway and arterial lane miles compared to the 2004 RTP, the PILUT 2 Alternative would disturb more water resources. The direct impacts due to increased road runoff and drainage patterns would be greater than the Plan Alternative and significant. Impacts to groundwater infiltration due to increased impervious surfaces of roads, and due to increased flooding hazards would be less than significant with implementation of the mitigation measures described for Impacts 3.12-1 through 3.12-3, though these impacts would be greater than those of the 2004 RTP.

The PILUT 2 Alternative's cumulative impacts to water quality, groundwater recharge, and flood hazards due to urban development patterns would be expected to be less severe than those of the 2004 RTP, though still significant. The PILUT 2 Alternative would accommodate similar population, households and employment to the 2004 RTP, but the PILUT 2 Alternative would assume that infill, redevelopment, and centers-based development would be prevalent before 2010, regardless of the contents of local plans. The 2004 RTP assumes that the local land-use and transportation measures would experience a ramp-up period, and would not be prevalent until after 2010. Due to the Plan's increased consumption of land through 2010, and the aggressive infill strategies for outlying communities included in the PILUT 2 Alternative, the PILUT 2 Alternative would consume less land than the Plan by 2030.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would regionally be approximately the same in the PILUT 2 Alternative and the Plan. The total population in each county differs between the PILUT 2 Alternative and the Plan. Four counties are at or above their treatment capacity in the PILUT 2 Alternative, as for to the Plan, but the impacts are distributed to different counties than in the Plan. In the PILUT 2 Alternative, Imperial and Los Angeles County's wastewater treatment capacities would be exceeded (as in the Plan scenario), and the impacts to Riverside and San Bernardino counties would be greater. Neither Ventura nor Orange County would exceed their wastewater treatment capacities in the PILUT 2 Alternative. Though it is expected that services would be added as they are needed, for the purpose of determining significance of the impact, the future wastewater flow must be compared to the existing treatment capacity, and the impact of the PILUT 2 Alternative is significant and of similar regional magnitude to that of the Plan, though the impacts are distributed differently.

[4] The transportation fuel consumption in Imperial County for the PILUT 2 Alternative was assumed to be the same as for the 2004 RTP.

The PILUT 2 Alternative would distribute less growth within the MWD service area, and more to other water supply agencies relative to the Plan. These water agencies are smaller, and most occur in drier inland climates. Relative to the Plan Alternative, these factors would provide additional challenges in supplying municipal water to meet the demand associated with the PILUT 2 Alternative. The *existing* water supply and infrastructure would not be able to support the population in the PILUT 2 Alternative in 2030. Implementation of the mitigation measures would provide future supply, but the *existing* supply still falls short of future demand. The impact would remain significant and greater in magnitude than the Plan Alternative.

Public Services and Utilities

Under the PILUT 2 Alternative, the need for police and fire/emergency services and solid waste services would be approximately the same as if the Plan Alternative were implemented. The potential to sever underground utility lines would be approximately the same.

The cumulative impact of new development to accommodate the additional population would generate approximately the same need for additional emergency personnel, schools, and solid waste services and would result in approximately the same chance of severing underground utility lines for the PILUT 2 Alternative as for the Plan Alternative. The congestion that would result from the growth distribution of the PILUT 2 Alternative would result in emergency vehicle response times that are worse than the Plan Alternative.

The PILUT 2 Alternative is projected to result in approximately 689,000 households in areas where there is a high, very high, or extreme threat of wild fires compared to 731,000 households under the Plan Alternative. The PILUT 2 Alternative would have a lesser cumulative effect than the Plan Alternative in inducing growth in areas with high threats of wild fires.

THE ENVIRONMENTALLY SUPERIOR ALTERNATIVE

With fewer and less severe impacts than all other plan Alternatives, the PILUT 1 Alternative is the environmentally superior alternative.